XI. DIPTERA

By E. BRUNETTI.

(Plate vi).

In view of the comparatively small number of species and the insufficiency of our knowledge of Oriental Diptera, any attempt to gauge the nature of the fauna of the Abor district must be little more than surmise.

Of eighty-five named species, including all the new ones (of which several are known to occur outside the region collected over by the expedition), 4 are found also in the Palaearctic Region, 16 in the Himalayan, 13 in Assam, 23 in the Indian plains, 7 in Ceylon and 14 in the Malay Peninsula or East Indian Islands.

Grouping them roughly into "Temperate" species (Palaearctic and Himalayan together) as against "Tropical" species (all the remainder), there are 16 species which occur at least in Himalayan localities (four occurring also in Palaearctic latitudes) whilst about 30 species occur in one or more of the tropical localities.

MYCETOPHILIDAE.

Leia arcuata, Brun.

One specimen from Komsing, 1-iii-12.

In the Indian Museum from Darjiling, Kurseong and Naini Tal.

Allactoneura cincta, Meij.

One specimen under bark in rotting wood, Kobo, 2-xii-11. A widely distributed species, occurring in Nepal, Sylhet, various parts of India, Ceylon and Java.

Sciara orientalis, Brun.

Three specimens; Rotung, 24 and 25-xii-11, and Dibrugarh, 17—19-xi-11.

Also a widely distributed species, in India, Ceylon, the Himalayas and Assam.

Sciara, sp.

Two specimens, too damaged to identify. The species falls in the group with the 1st longitudinal vein ending much before the fork of the 4th vein, and with blackish thorax. One is from Yembung (13-i-12), "in camp," the other from below Dosing (1400 ft.), 29-i-12, "under bark."

BIBIONIDAE.

Pleciomyia melanaspis, Wied.

Six specimens altogether, from Dibrugarh, 17—19-xi-11; between Kalek and Misshing (4500 ft.), 17-iii-12, Kalek (2300 ft.), 15-iii-12. It is common in Abor villages.

Bibio obscuripennis, Meij.

A headless example from Rotung, 25-xii-11 (on the sand banks of the Dihang River), is in all probability this species. In this specimen the 3rd vein forks immediately over the anterior cross-vein; this is abnormal, as it usually forks very distinctly before it.

SIMULIIDAE.

Simulium ? indicum, Becher.

There are three specimens of a *Simulium*, of which at least one is likely to be *indicum*, Becher, but they are much too worn to identify with precision. The one in the best condition is from Rotung (23-xii-11), the others from Rotung (24-xii-11) and Upper Rotung (6-i-12). One bears the laconic note "bites."

CHIRONOMIDAE.

Calyptopogon albitarsis, Kief.

One specimen (17—19-xi-11) from Dibrugarh.

Kieffer (Mem. Ind. Mus. ii, p. 210) comments on Meijere's note (Tijd. v. Ent. l, 216) on a specimen from Java which he identified with *Macropeza gibbosa*, Wied, saying that as that author said nothing about the form of the thorax, he (Kieffer) concludes that it is shaped as in the European (type) species of *Macropeza*, Mg. (*albitarsis*, Mg.): that is to say without the conspicuous projection over the head which characterizes Wiedemann's species.

But as it seems impossible that Meijere could have avoided reading Wiedemann's very distinct statement, "thorace antice supra caput producta," it must be assumed that he correctly identified the older author's species, though possibly considering a new genus for it unnecessary. If this be the case, Kieffer's *nom. nov.* (*Macropeza javanenis*) for the species identified by Meijere as *gibbosa*, Wied. will sink as synonymous. The erection of a new genus for *gibbosa* seems quite just.

C. albitarsis differs from *gibbosa* by the hind metatarsus being twice as long as the corresponding tibia; whilst, according to Meijere it is "longer" than the tibia in *gibbosa*. It seems to me the relative lengths of the tarsal joints are not always consistent. Although the present specimen is referred to this species, the hind metatarus is only a little more than one and a half times as long as the hind tibia, and in two other specimens of the same species in the Indian Museum from South India (Kerumaadi, at the south end of Vembanaad Lake, Travançore (6-xi-08) and Trivandrum

(13-xi-08) both taken by Dr. Annandale) the relative lengths are not constant, the hind metatarsus in one being about one and three quarter times as long as the tibia. The abdomen in the Dibrugarh specimen is tinged with dull red, and in one of the other specimens referred to the legs are brown instead of black, the tarsi being less white than usual.

N.B.—Two specimens of *Chironomus* (*sensu lato*) are in the present collection but are too damaged to identify. One is from Dibrugarh, the other from Sadiya.

PSYCHODIDAE.

Psychoda notatipennis, mihi, sp. nov.

(Pl. vi, fig. 4).

Sex? N.E. Frontier of India. Long. barely 1 mm.

Head crushed by pin but one perfect antenna remains and this is densely covered with greyish white pubescence; there are also long whitish hairs about the frons.

Body.—Pale yellowish, thorax mainly brown, abdomen with a little blackish across the middle of the dorsum. Both thorax and abdomen with rather long whitish hairs in moderate density. Belly yellowish with whitish hairs.

Legs.—Dark brown with a little pale pubescence.

Wings.—Clear, with two divaricate rows of fine whitish grey hairs to each vein, the rows lying across one another between the veins. Six small but very distinct spots composed of dark brown hairs are placed in a transverse row at one third of the wing's length, situated respectively over the auxiliary vein, 1st vein, 2nd and 4th veins at their forks, 5th and 7th veins, in the case of the 7th vein near its tip, which is nearly opposite the tip of the 1st vein but rather more proximad. A second row of similarly formed spots crosses the wing a little beyond the middle, the third spot of which is a little more proximad than the others. In this second row the 1st spot is at the tip of the first ending of the 2nd vein, very close to the costa, the 2nd (the largest) on the lower branch of the 2nd vein, the 3rd spot (the most proximad one) on the upper branch of the 4th vein, and the 4th spot near tip of 5th vein, close to the wing margin. There is a similar spot at the tip of the 1st longitudinal vein, which lies on the costa, a little proximad of the second transverse row of spots. Two other similar spots are placed close to the wing tip, respectively at the tips of the lower branch of the 2nd vein and of the upper branch of the 4th vein.

Described from a single specimen in good condition, except for the partially crushed head, from Rotung, 1400 ft. (24-xii-11), taken under the leaf-stem of a decomposing plantain.

Owing to the long hair at the abdomen tip it is not easy to distinguish the sex. This specimen is the only one of this family obtained upon the Expedition.

CULICIDAE.

Toxorhynchites, sp.

One specimen of this genus, very much worn, from Dibrugarh, 17—19-xi-11.

Stegomyia fasciata, F.

Rotung (26-xii-11), a single ♂ in good condition. A very widely distributed species in the East as well in other parts of the Tropics

N.B.—One other specimen of *Culicidæ* is present, which I am unable to determine; it has the yellow appearance of a *Chrysoconops.*

TIPULIDAE.

Tipula majestica, Brun.

One ♀, a small specimen, from between Kalek and Misshing (4000 ft.), 15-iii-12. A not uncommon species, represented in the Indian Museum from Naini Tal, Kurseong, the Nilgiri Hills and Assam.

Dicronomyia saltans, Dol.

Several (♂ ♀) from Dibrugarh, 17—19-xi-11. Described originally from Central Java; it occurs also in Travancore, and is probably generally distributed in the East.

Dicronomyia marmoripennis, Brun.

Four specimens, ♂ ♀; Kobo (400 ft.) (2—3-xii-11), by sweeping in thick jungle. A species widely distributed in India; in the Indian Museum from Darjiling, Kurseong, Purnea, and Bangalore.

Limnobia, sp.

One ♂ in indifferent condition, probably of an undescribed species: Kobo, 12-xii-11.

Geranomyia notatipennis, mihi, sp. nov.

(Pl. vi, fig. 1).

♂ N.E. Assam. Long. 5 mm.

Head.—Blackish grey, frons lighter; antennae dark reddish brown, 1st scapal joint very large and long; proboscis curved, black, about as long as extreme length of head and thorax together.

Thorax.—Rather bright light brownish yellow, three dorsal brown stripes, the median one continued over the anterior margin along the moderately lengthened neck; outer stripes shorter as usual. Traces of a pale brown lateral stripe from neck to root of wings; post-sutural surface of dorsum darker brown, scutellum concolorous, metanotum blackish.

Abdomen.—Brownish yellow, hind margins of segments indistinctly but obviously broadly brownish; belly mainly black.

Legs wholly brownish yellow.

Wings.—Pale yellowish; five pale brown moderately small spots on costa; 1st a little before origin of 2nd longitudinal vein; 2nd over origin of 2nd vein but extending to the costa; 3rd at tip of auxiliary vein and over subcostal cross-vein; 4th over tip of 1st longitudinal vein and marginal cross-vein; 5th at tip of upper branch of 2nd longitudinal vein. Of these spots the 2nd and 4th are slightly the largest. Halteres brownish yellow.

Described from a single ♂ from Dibrugarh, 17—19-xi-11.

Libnotes punctipennis, Meij.

One ♂, Dibrugarh, 17—19-xi-11. The species described from Java; in the Indian Museum from Assam, Darjiling and Peradeniya.

Libnotes fuscinervis, Brun.

One ♂ between Kalek and Misshing (4000 ft.), 18-iii-12.

In the three specimens in the Indian Museum of this species (apart from the present example) the submarginal cell has a cross-vein as well as the marginal, except in one wing only of one specimen. This fact seems to prove that the unusual presence of an additional cross-vein is not specific. No such extra cross-vein is present in the Abor example. The three ♂ ♂ in the Indian Museum are from Darjiling.

Rhamphidia, sp.

One example without legs or antennae, taken between Kalek Misshing (17-iii-12) at 4000 ft.

Teucholabis biannulata, Brun.

Two specimens (one is a ♀, the other has the abdomen tip missing); taken below Damda (3000 ft.) under leaf-stem of plantain and at Rotung, 27-xii-11. It occurs at Kurseong.

Conosia irrorata, Wied.

Dibrugarh, 17—19-xi-11. Two specimens.

Amalopis glabripennis, Brun.

One ♀ is evidently this species, taken at Yembung (1100 ft.) (15-i-12) on bank of stream. Occurs at Darjiling.

Limnophila claripennis, mihi, sp. nov.

♀ N.E. Frontier of India. Long. $3\frac{1}{2}$ mm.

Head and *thorax* nearly ash grey or a little darker, with a pale brown median stripe on the latter with, on each side of the stripe,

a little darkening of the surface about the "pits," that is, in the spots where the subcontiguous side stripes usually appear. Viewed from behind, the thorax is a little darker and more brown in colour. Scutellum, metanotum and sides of thorax more or less concolorous; palpi blackish; antennae brownish yellow.

Abdomen.—Dark brown above, with indistinct blackish margins to segments and a blackish side stripe; belly dirty brownish yellow.

Legs.—Wholly brown or dark brownish yellow except coxae and basal part of femora which are pale yellowish, the colour in the latter darkening to brown by about the middle.

Wings.—Quite clear; 5 posterior cells; petiole of 2nd posterior cell shorter than the cell; 4th posterior cell as long as the discal cell; posterior cross-vein distinctly before the discal cell. Halteres pale yellow.

Described from three ♀ ♀ from Yembung (1100 ft.), 13-i-12; in jungle, near plantain trees.

In the two examples other than the type, the head and thorax are much darker, but this is apparently due to their being somewhat stained.

Limnophila quartarius, mihi, sp. nov.

♂ ♀ N.E. Frontier of India. Long. 3-4½ mm.

Head.—Occiput cinereous grey, or nearly ash grey; antennae bright brownish yellow; palpi a little darker.

Thorax.—Brownish yellow; the pre-sutural dorsum brownish, the post-sutural part, shoulders and pleurae lighter, nearly pale yellowish; two large round black spots on the sides, one before and one behind the wing-root; post-sutural callosities a little deeper brown.

Abdomen.—Brownish yellow; a lateral black stripe; posterior margins of segments more or less blackish, and a fine black transverse line across the middle of each segment. Tip of abdomen darker, genitals concolorous in ♂, pale yellow in ♀

Legs.—Brownish yellow, tips of femora sometimes a little blackish.

Wings.—Very pale grey, rather large, broad, and rounded at the tip. The 2nd longitudinal vein, after the origin of the 3rd, forks at one fourth of its remaining length, the branches strictly parallel, just sufficiently turned upwards at their tips to make them bisinuate; the 3rd vein springs from the 2nd (at the lowest point of the downward curve of the praefurca), without any curve or angle, and the anterior cross-vein is situated at the same spot. The 1st posterior cell with strictly parallel sides; discal cell distinctly shorter than 2nd and 3rd posterior cells; posterior cross-vein just after base of discal cell, but slightly variable in position. Halteres obscure.

Described from 5 specimens from Rotung (1400 ft.), 26—27-xii-11.

The only ♀ present is stained and nearly black, but it is obviously of this species.

Epiphragma kempi, mihi, sp. nov.

(Pl. vi, fig. 2).

♀ N.E. Frontier of India. Long. 10 mm.

Head.—Bright brownish yellow, a little darker immediately above the antennae, of which the 1st scapal joint is dark brown, long and cylindrical, the 2nd being cup-shaped, short and brownish yellow, (flagellum missing). Palpi and underside of head brownish yellow.

Thorax.—Brownish yellow, a little darker brown on each side of the middle, on and around the scutellum and metanotum and below the wings, but in all cases the brown colour ill-defined.

Abdomen.—Wholly brownish yellow, a lateral black stripe and a faint pale transverse line across the middle of each segment as is usual in this genus. Belly pale brownish yellow.

Legs.—Wholly brownish yellow; a moderately broad subapical pale brown band on all the femora, anterior to which the limb is distinctly paler.

Wings.—Pale yellowish grey with a brownish yellow ornamentation arranged as follows. The base of the wing is so coloured but the costal cell is clear at the base. Beginning (by punctiform contact only) at the basal brown part is a zigzag line of moderate width, proceeding to the costa, with which it is in moderately broad contact; it then descends to the 5th longitudinal vein, where it is sharply demarcated, thence proceeding upwards to the costa with which it is again in broad contact, at a little distance before the characteristic cross-vein between the costa and the auxiliary vein. It proceeds downwards again to the 4th longitudinal vein, at which point it is deflected backwards somewhat, reaching the hind margin of the wing where it encloses the tip of the 7th longitudinal vein. From the middle of the 1st basal cell a branch band proceeds again to the costa, with which it is broadly in contact, and whence the band proceeds directly hindwards to the wing margin (narrowing considerably at the inner side of the discal cell), which it reaches broadly behind the 5th vein.

An oblong spot, placed transversely to the wing's length, extends from the 3rd longitudinal vein (embracing the outer side of the discal cell) to the 5th longitudinal vein, where it sharply ends. A pear-shaped spot begins on the costa at the tip of the upper branch of the 2nd longitudinal vein, ending at about the upper branch of the 4th longitudinal vein, at which spot it is joined to another spot which gives out four branches to the wing tip, ending respectively at the tips of the lower branch of the 2nd vein, of the 3rd vein and of both ends of the upper branch of the 4th vein. A small spot beyond the middle in both the 3rd and 4th posterior cells. A spot in the middle of the axillary cell. Halteres brownish yellow.

Described from one ♀ taken between Kalek and Misshing (4000 ft.), 16-iii-12.

Dicranophragma gracilis, mihi, sp. nov.

(Pl. vi, fig. 3).

♀ N.E. Frontier of India. Long. just over 2 mm.

Head.—Occiput ash grey; eyes and mouth parts black; palpi blackish (antennae missing). *Thorax* seen from in front, grey, seen from behind, brownish; sides of thorax dirty brown.

Abdomen.—Dirty brown, a median stripe and a lateral one on each side, the emargination of the segments obscure; belly dirty yellow.

Legs.—All brownish yellow, very shortly pubescent, extreme tips of coxae and trochanters black.

Wings.—Pale grey. Auxiliary vein ending opposite the middle of the discal cell. The 1st longitudinal vein ends midway between the tip of the auxiliary and the wing tip; the praefurca takes a wide curve, its upper branch approximating very closely to the 1st longitudinal vein just beyond the tip of the auxiliary vein; marginal cross-vein just before tip of 1st vein. The two submarginal cells about equal in length, both distinctly longer than the marginal cell; base of 1st roundly pointed, that of the 2nd nearly square. Anterior branch of 4th longitudinal vein forked; petiole of 2nd posterior cell shorter than the cell; 4th posterior cell about as long as the discal cell; posterior cross-vein just before the discal cell. A distinct cross-vein in the 1st submarginal cell just beyond the marginal cross-vein. Costal part of wing from tip of auxiliary vein to nearly the end of the marginal cell, brownish, and most of the veins, except the basal half of the 4th and 5th and all the 6th and 7th, faintly but obviously narrowly tinged with pale brown here and there.

Described from a single ♀ from Yembung (1100 ft.) (13-i-12), in jungle near plaintain trees.

STRATIOMYIDAE.

Microchrysa albitarsis, mihi, sp. nov.

♀ N.E. Frontier of India. Long. 5 mm.

Head.—Frons one-fifth the width of the head, with a slight deep blue tinge, but brilliant violet immediately above the antennae. Head below antennae bronze green with black hairs. Antennal 1st joint black, 2nd and 3rd yellow, the latter divided by two annulations into three divisions, arista long. Back of head blackish.

Thorax.—Wholly brilliantly shining metallic green, with very short whitish pubescence.

Abdomen.—Dark green with very short sparse whitish pubescence, which is a little longer around the margin and at the tip. Belly darker, nearly black.

Legs.—Black, with microscopic whitish pubescence, all the tarsi wholly yellowish except the extreme tips.

Wings.—Clear, veins and the region of the stigma yellowish; halteres apple green.

Described from a single perfect ♀ from Dibrugarh, 17—19-xi-11.

Tinda indica, Walk.

One ♂, Dibrugarh, 17—19-xi 11. A not uncommon and rather widely distributed species, occurring in India, Assam, Celebes and Manila.

TABANIDAE.

Chrysops ? designata, Ricardo.

Two ♀ ♀ of a species of this genus agree fairly closely with Miss Ricardo's *designata*, and may be a varietal form of it. It was described from specimens from Naini Tal, Nepal and Yunnan.

ASILIDAE.

Of this family only four specimens are present. Two are not in sufficiently good condition for identification, one belonging to the *Dasypogoninae*, the other to the *Asilinae*: both from Sadiya, taken respectively 23-xi-11 and 28-xi-11. The remaining two specimens are in good condition, representing *Asilus* (*sensu lato*), coming respectively from Kalek (3200 ft) (19-iii-12), and Dibrugarh, 17—19-xi-11. In view of the large number of species of this group described from the East and the extreme difficulty of differentiating the species, any attempt at identification would be little better than conjecture.

DOLICHOPIDAE.

Six specimens are present belonging to this family, but identification is practically impossible, from the indifferent condition of most of them, and the fact that they are mostly females. Moreover, until the Oriental species already described are placed upon a firm foundation, it would be hazardous in the extreme to encumber the catalogue with further names. One is a *Psilopus*,[1] of which over seventy species have been described from the East, mostly from single specimens, the types of which are now probably in greater part unrecognizable or completely lost.

SYRPHIDAE.

Paragus rufiventris, mihi, sp. nov.

♂ Assam, Western Himalayas, Ceylon. Long. 5 mm.

Head.—Frons shining black, almost bare. Eyes subcontiguous only, and for a very short distance; posterior orbit of eyes with a

1 Aldrich, the leading expert in North America in this family, has shewn that the use of this name by Poda previously was not in a zoological sense, and therefore its abandonment in favour of *Agonosoma* is unjustifiable.

fringe of white hairs, weakest behind the vertex, where the hair is darker. Face very pale lemon yellow, shining, bare, becoming nearly whitish towards the mouth, above which is a little white hair on each side. A black shining median line on the face from immediately below root of antennae to the mouth. The middle part of the face in profile a little protuberant. Antennae blackish brown, 3rd joint more or less reddish brown below at base, arista dorsal, placed at about one-third of the length of the joint. Proboscis shining blackish brown.

Thorax.—Shining black, covered rather closely with black socketed hairs, which give a punctured appearance to both the dorsum and the scutellum, which latter is concolorous. Sides black, a little conspicuous white hair in front of the wing roots.

Abdomen.—Black or blue black, shining; about the hind half or a little more or less, bright reddish brown; the whole surface of the abdomen with white hairs extending over the sides. The tip of the abdomen is sometimes black, or the reddish part may be black at the sides. Belly generally a replica of the upper side

Legs.—Coxae and basal half of femora black, shining, apical part of femora brownish yellow, shading into the lemon yellow tip, this colour extending over about the basal third of the tibiae, the remainder being brownish yellow. Tarsi brownish yellow, a little golden yellow pubescence below the hind pair.

Wings.—Clear, venation normal, halteres pale yellowish white.

Described from a single ♂ from Sadiya, 23-ix-11, and also from four ♂ ♂ in the Indian Museum; the *type* from Mangaldai, Assam —Bhutan Frontier (1 or 2-i-11) [*Kemp*]; the others from Dhikala, Gharwal District, base of Western Himalayas, 10-iii-10; Bijrani, Naini Tal District, 19-iii-10; Peradeniya, Ceylon, 15-vii-10.

Paragus serratus, Fab.

Two ♂ ♂ from Sadiya, 23-xi-11, and Dibrugarh, 17—19-xi-11, respectively. A common and widely distributed species in South Asia, India, Sokotra, Ceylon and Java, and probably in many other parts of the Orient also.

Chilosia apicalis, mihi, sp. nov.

♀ N.E. Frontier of India. Long. $7\frac{1}{2}$ mm.

Head.—Eyes with grey pubescence; the frons at just above the antennae, nearly one-third the width of the head, narrowing to the vertex, where it is only two-thirds as wide. Whole head aenous, with darker and with greyish reflections. Vertex and frons with black hairs, also the large transverse callosity just above the antennae, which reaches from eye to eye and is rather impressed in its middle. Facial bump moderately projecting, with a little yellowish grey hair on each side of the mouth opening. Proboscis blackish, with large reddish brown labella. Underside of head with a little white hair. Antennae reddish brown, upper

side and tip of 3rd joint blackish. Posterior border of eyes with white hair on the lower half.

Thorax.—Aenous, with a very slight bronze green tint viewed in certain directions, with short black and yellow hairs. Scutellum concolorous; black hairs on dorsum, with which some yellow ones are intermixed, yellow hair only on underside, softer and closer and there are at least six long black bristles on the hind border A few inconspicuous black bristles behind the wings; pleurae with light yellowish hair.

Abdomen with 1st segment brownish, the remainder dull black, with yellowish hairs, which are thicker towards the base at the sides. Belly similar, nearly bare.

Legs.—Coxae black, a little reddish brown about the trochanters; femora black except narrowly yellowish at tips; tibiae orange, with a rather narrow median band which is narrower and incomplete on the anterior legs, and broader and complete on the hind legs. Tarsi orange, tips brown; hind tarsi with all the upper side dark.

Wings.—Nearly clear; stigma brownish yellow, extending to the end of the cell; a blackish infuscation over the apical third of the wing, extending from the stigma posteriorly to about the hinder limits of the 1st posterior cell. Halteres dirty yellow.

Described from one ♀ from Rotung (1400 ft.), 4—13-iii-12.

Syrphus balteatus, Degeer.

Seven specimens (♂ ♀) of this widely distributed Palaearctic, North American and Himalayan species; from Sadiya (23-xi-11), Rotung (26-xi-11) and Dibrugarh, 17—19-xi-11.

Syrphus aeneifrons, mihi, sp. nov.

♂ N.E. Frontier of India. Long. 10 mm.

Head.—Eyes with dense dark brown pubescence; touching for more than half the distance from the upper corner of the frons to the elongate vertical triangle. This latter is black, with a few stiff black hairs curved forwards. Frons aenous bronze, antennal tubercle black, both with long black hairs. Face orange yellow, barely produced in the middle, just above the mouth, where it is blackish. Mouth border and lower edge of face black, with a few black hairs. Proboscis brownish. Antennae wholly black, 2nd joint emarginate, with black bristles at tip; 3rd joint elongo-conical, arista black. Posterior orbit of eyes with a fringe of bright orange scale-like thick hairs; occiput grey.

Thorax.—Shining black, with brownish yellow hairs. Sides dark grey; pleurae with grey or yellowish grey hairs; scutellum yellowish with dark brown hairs.

Abdomen.—Ovate, black, moderately shining; 2nd segment with a pair of elongo-triangular yellowish spots; their bases placed near the lateral margins, their apices nearly reaching the centre of

the segment; 3rd segment with a pair of elongate spots near the anterior margin, and not attaining the lateral margins. (They are slightly widened towards the sides in one specimen, but are of uniform width in the type). These spots nearly meet in the centre of the segment (probably in individual specimens actually are united). The 4th segment with two similar spots but rather smaller. (These in the type are of uniform width, but in the 2nd specimen are distinctly wider towards the sides as in the previous segment). Pubescence of abdomen concolorous with the ground colour; a quantity of pale yellow or whitish yellow hair laterally at base. Belly blackish, with greyish reflections, yellowish about the middle.

Legs.—Coxae and basal half of femora black, the tarsi brown; remainder of legs yellowish or brownish yellow; a little whitish and pale yellowish hair on the femora, longer on the underside.

Wings colourless; stigma dirty brownish yellow; halteres dull red brown.

Described from two ♂♂; the *type* taken between Kalek and Misshing (4000 ft.), 18-iii-12; the second example taken at Yembung (1100 ft.), 17-iii-12.

Syrphus transversus, mihi, sp. nov.

♀ Assam. Long. 10 mm.

Head.—Eyes with yellowish white pubescence. Frons gradually widening from vertex to a line drawn through the base of the antennae, where it is fully one-third the width of the head at that point. Vertex shining violet, bare, except for the ocellar triangle which bears a few short black hairs. Rest of frons yellowish white dusted, but for a large space around the antennal protuberance it is shining black. Face pale yellow, more whitish below, central bump rather small, shining black, the colour extending in a stripe to the mouth. The whole frons (except the vertex) down to the antennae bears black pubescence, the whole face bears whitish pubescence, which is longest on the lower part and around the black mouth border. Proboscis blackish brown. Antennae wholly black, much as in *aeneifrons*, 3rd joint a little shorter. The anterior edge of the antennal protuberance brownish yellow. Back of head ash grey; upper posterior orbit of eyes with a fringe of bright yellow scale-like thick hairs, the lower part of the orbit with similar white scaly hairs.

Thorax.—Aenous, with pale brownish yellow hairs. Sides ash grey with whitish hairs. Scutellum yellowish, with yellow hairs on the dorsum and long black hairs in the region of the posterior border, and soft pendant white hair below.

Abdomen.—Ovate, black, 1st segment aenous, very short; 2nd, 3rd and 4th segments with a moderately broad yellow band on each, none of them attaining the side margins, all narrowed in the middle, the 1st and 3rd bands practically interrupted there. In fact the 1st band is really composed of two elongate triangular

yellow spots, their apices not contiguous, but connected by a small grey dusted patch. The 3rd band is actually interrupted for a very short space and in individual specimens might easily resolve itself into two elongate spots. Pubescence of abdomen concolorous with ground colour; a good deal of white hair laterally at the base and short pubescence along the side margins except where the black parts of the abdomen intervene. Belly blackish, the two wider yellow bands duplicated as on the dorsum, the pubescence sparser. In certain lights the dorsal abdominal bands have a creamy shade, especially the 1st band.

Legs.—Coxae rather less than half as long as the anterior femora, and more than half the hind femora, black. Tibiae brownish yellow, tarsi brown or blackish brown, hind pair with golden brown pubescence below. Femora with pale hair, hind tibiae with minute black pubescence on outer side.

Wings clear, subcostal cell pale yellow; halteres yellowish white.

Described from one ♀ from Sadiya, 28-xi-11.

Syrphus fulvifacies, mihi, sp. nov.

♀ N.E. Frontier of India. Long. 9 mm.

Head.—Eyes bare; frons twice as wide at the level of the antennae (where it forms one third of the head) as at the vertex; wholly dull black, but for a short space below the black vertical triangle and also above the antennal protuberance it has a brassy aenous tinge. From the vertex to the antennae with black hairs. Face wholly, from roots of antennae downwards to lower margin, bright golden orange, rather deeper on central knob, which is of moderate size; mouth black but the mouth border itself yellow, with a small black spot at the extreme tip of the snout. Proboscis dark brown. Face with a little short black pubescence on sides of protuberance, on the remainder with very soft pale yellow hairs. Antennae dull black, basal two-thirds of underside of 3rd joint dull reddish brown, arista black. Occiput grey with a complete marginal fringe all round of uniformly sized bright yellow scale-like thick hairs.

Thorax.—Dull blackish, with soft pale brownish yellow hairs. These are so sparsely placed and of such fineness that the dorsum appears at first sight denuded of pubescence except towards the lateral margins and at the sides, where it is bright golden yellow and much thicker both in texture and quantity. The pleurae and wing bases also covered with similar golden yellow hair; sides of thorax cinereous grey. Scutellum yellow, with rather copious long black pubescence.

Abdomen.—Ovate, black. A pair of elongate yellow spots in the centre of the lateral margins of 2nd segment, their inner ends rounded but well separated from one another. A yellowish band in the middle of the 3rd and 4th segments, their anterior corners only reaching the lateral margins. These bands are emarginate in the

middle, more conspicuously so behind, both are of uniform width with the spots on the 2nd segment. Extreme posterior margin of 5th segment yellow. Pubescence of abdomen black, even on the yellow parts, but there is the usual amount of hair about the anterior corners, where it is bright yellow. Belly blackish, the yellow bands present about the same appearance as on the dorsum.

Legs.—Coxae, nearly the basal half of the anterior femora, all the hind femora except the tips, and hind legs wholly, except the basal third of their tibiae, black; the remainder of the legs yellow, tips of anterior tarsal joints with a row of black bristles, giving a darkened appearance to these parts, and the anterior tarsi with short black bristly hairs below. Hind tibiae with golden yellow pubescence on inner side; hind tarsi with similar pubescence below.

Wings clear, subcostal cell brownish yellow; halteres yellow.

Described from a single ♀, Rotung, 26-ix-11.

N.B.—This species is remarkably like the very common Palaearctic *S. ribesii*, L. and may possibly be a variety of it, unless the limits of that species are truly known. If so, it differs from *ribesii* by the hind femora being principally black. In this respect it resembles *vitripennis*, Mg., if this latter is really distinct. Verrall states of *vitripennis*, in comparing that species with his wonderfully correct description of *S. ribesii*, that its best specific distinction from the latter is "the scarcity of the tiny black bristles about the tip of the hind femora in both sexes." In *ribesii* these bristles are wholly yellow on all the femora except the middle pair (where they are black); in *vitripennis* they are all black and scarce. In the present form they are black and numerous. The hind tibiae are all black except about the basal third, whereas in *ribesii* there is at most an obscure dark patch on the front side, and in *vitripennis* the tibiae are wholly yellow.

The present form is as distinct from both *ribesii* and *vitripennis* as these two are from one another, but I am still open to question whether the three forms are not merely three well-marked varieties of one species. There are also so-called "species" in North America so near *ribesii* that further confirmation of their distinctness would be very satisfactory.

Syrphus maculipleura, mihi, sp. nov.

♀ N.E. Frontier of India. Long. 6 mm.

Head.—Frons at base of antennae one third of the head, diminishing to half this width on the vertex, where it is shining with a dark violet aenous tinge. Remainder of frons shining aenous black, except for a narrow pale yellow eye margin which joins the pale yellow face, on which is a broad shining black middle stripe from the base of the antennae to the mouth. The small space between the roots of the antennae, yellow. Antennae with 1st and 2nd joints brown, 3rd with upper half black and lower part dull reddish brown. Frons with fine black hairs, face

with sparse short fine yellow hairs. Proboscis black with yellow labella. Hinder orbit of eyes with whitish yellow scaly hairs, back of head blackish grey. In profile the head does not extend downwards below the level of the eyes.

Thorax.—Bright shining aenous with a bronze tint, with short black or blackish brown hairs. Scutellum with dull black (almost velvet black) dorsum, the colour becoming dark brown on the hind margin; the extreme base is narrowly pale yellow; the surface covered with black hairs. Sides of thorax dull aenous or aenous grey, with a small quantity of yellowish or yellowish grey hair. A small oblong, pale yellow, inconspicuous callus-like spot on each shoulder; a small similar spot on the prothorax on each side just above the first pair of coxae. Three elongate similarly coloured small spots placed in a curved line below and behind the wings, the lowermost spot situated on the sternopleura.

Abdomen elongate, of uniform width, about as long as head and thorax together, black; 1st segment yellow except a little blackish in the middle at the base; 2nd segment with a pair of elongate yellowish spots across the middle, their outer ends touching the lateral edges of the segment, their inner ends well separated. The 3rd and 4th segments each with a slightly arcuate yellowish band, emarginate in middle on hinder side, placed just before the middle of the segment, and almost attaining the lateral margins (or if reaching them in individual examples, the contact probably practically punctiform only). The 5th segment with two oval yellow spots placed diagonally from anterior border to each hind corner. The whole abdomen with fine short black hairs, the sides also with black hairs; very little pale hair about the anterior corners of the abdomen. Belly mainly yellowish; the black parts of the dorsum more or less duplicated below.

Legs.—Anterior pairs pale yellow; an infuscated streak on upper side of fore femora and on outer side of fore tibiae; middle femora and tibiae similar but the obscure mark on the tibiae forms more nearly a median band. Fore tarsi all rich brown, middle tarsi black. Hind legs all black except base of femora a little yellowish; rich golden brown pubescence below hind tarsi. Pubescence of legs weak, pale yellow on anterior legs and black on hind pair.

Wings.—Clear, iridescent; subcostal cell pale brownish yellow; halteres yellow.

Described from one ♀, Rotung, 25-xii-11.

N.B.—According to Verrall, species with distinct yellow spots on the pleurae should not be included in *Syrphus*, yet it is difficult to know where else to place the present species. The shoulder spots are not continued as a yellow border to the thorax, and both this character, the *Syrphus*-like *facies* of the insect and width of abdomen (relatively broader than such species as *cinctus* and *cinctellus*) and the distinct *Syrphus*-like markings of the abdomen, all prevent it coming in *Sphaerophoria*. In its general appearance it is still less like *Mesogramma* or *Allograpta*. From *Xanthogramma*

its comparatively narrow abdomen and general appearance and also the absence of yellow side lines to the thorax, separate it.

As it seems to all intents and purposes a *Syrphus*, it is left in this genus, at least for the present.

Asarkina salviae, Wied.

One ♂, typical, Sadiya, 23-xi-11.

Asarkina aegrotus, F.

One ♂, Sadiya, 28-xi-11. The wings are infuscated on the entire basal half instead of bearing, as in typical forms, a broad cross band, but other specimens in the Indian Museum have only the shortest possible clear space at the wing base.

Melanostoma mellinum, L.

Two specimens of this common and widely distributed Palaearctic species: Dibrugarh, 17—19-xi-11 and Kobo (400 ft.), 3-xii-11, both females. It is common in many Himalayan localities.

Melanostoma orientalis, Wied.

One ♀, Sadiya, 28-xi-11; two ♀ ♀, Dibrugarh, 17—19-xi-11.

Very near *scalare*, F. of Europe, as Wiedemann says; it is still nearer *mellinum*, L. The absence of the bump above the antennae seems to have been overlooked by Wiedemann, but it appears a sound and consistent specific character. The antennae are described as wholly bright orange yellow, but in one or two examples seen by me from other localities, as well as in the present specimens, there is a little brown on the upper side and the tip of the 3rd joint. Also, the frons is rather more grey-dusted. The species is in the Indian Museum, as determined by me, from Bangalore and Mergui.

Melanostoma univittatum, Wied.

Four ♂ ♂, Dibrugarh, 17—19-xi-11, agree exactly with the description, as do other specimens in the Indian Museum from Bangalore and Mergui.

Sphaerophoria scutellaris, F.

Sadiya, 23—28-xi-11, Rotung, 1400 ft., 26-xii-11, Kobo, 400 ft., 30-xi-11, four specimens in all, both sexes being present. One of the most widely distributed species of Syrphidae, extending (probably) over the whole of the Orient, North and South Africa, the Canaries, Madagascar and Formosa.

Bacha flavopunctata, mihi, sp. nov.

(Pl. vi, figs. 5-6).

♀ Assam. Long. 9 mm.

Head.—Vertex, and the frons for a short distance, shining black ; remainder of frons, down to the antennal protuberance, yellow-dusted. From this part downwards, the whole face pale yellow, with a median shining black stripe and a black spot immediately above the antennae, which latter are wholly bright yellow. Below the mouth opening, shining steel colour ; proboscis yellow, occiput dark grey with a fringe of short yellow hairs.

Thorax.—Dorsum shining dark aenous black, an oblong bright callus-like yellow spot on the shoulders ; an elongate perpendicular stripe on the mesopleura, with a small spot below it on the sternopleura ; a diagonal stripe on the metapleura from the just mentioned spot, passing behind the wing root ; all these spots bright yellow, callus-like, smooth and shining. Scutellum bright yellow, with a central brown oval spot ; a few grey hairs.

Abdomen.—Very attenuated on basal half except at base of 1st segment ; some white lateral hairs towards the base, the rest of the surface with sparse short black hairs. The 1st segment pale yellow, 2nd light brown, very narrow to tip, 3rd and 4th gradually widening to the tip of the latter, each with a wide black band on posterior margin ; 3rd blackish also at base, especially towards the sides ; 5th segment brownish yellow. Belly similar to dorsum.

Legs.—Coxae black ; anterior legs (except coxae) wholly bright yellow down to tarsi tips ; a broad median band on hind femora, and the apical half of hind tibiae, dark brown or black ; upper side of hind metatarsus rich dark golden brown, the colour more or less extending to the under side, which is covered with golden brown hair ; remainder of hind tarsi orange-yellow.

Wings.—Clear grey ; subcostal cell blackish, costal cell and about the basal half of the marginal cell brownish, and the costa from the end of the stigma to the tip of the 3rd vein, narrowly and distinctly black suffused. Halteres yellow.

Described from a single ♀ from Dibrugarh, 17–19-xi-11.

N.B.—This species must be near *gratiosa*, Big. Several specimens were already in the Indian Museum from Sukna (base of Darjiling hills) and one from Rungpo, Sikkim, 6-ix-09, all males.

Sphegina tristriata, mihi, sp. nov.

(Pl. vi, fig. 7).

♀ N.E. Frontier of India. Long. 6 mm.

Head.—Frons uniformly wide, about one-fourth of the head, shining black, but not brilliant. Eyes dull red, antennae brownish yellow, 1st joint brownish, 3rd a little infuscated above at the tip. Mouth parts and proboscis yellowish.

Thorax.—Ground colour brownish yellow, but dorsum almost wholly occupied by three practically contiguous dark brown

stripes, with only a brief space between them, at their middles, as they are united on the anterior margin and practically so near the posterior margin also. Pleurae dark brown; scutellum concolorous.

Abdomen.—Mainly black, base of 2nd segment and whole of 3rd, pale whitish yellow.

Legs.—Anterior pairs pale yellow, tarsi tips brownish; hind legs yellowish brown, with femora broadly dark brown at tips and on upper side, the colour extending over the sides, but not attaining the ventral surface for a certain space beyond the all pale yellow base.

Wings.—Pale grey, subcostal cell darker grey. Tip of wing infuscated as far inwards as just proximad of the up-turned section of the 4th longitudinal vein; but, in the marginal cell, implanted in the infuscated part, is a tear-shaped clear spot in contact with the clear part of the wing. Small infuscations over the origin of the 3rd vein, the anterior cross-vein, and the upturned section of the 5th vein. Halteres dirty white.

Described from a unique ♀ from Rotung, 6–13-iii-12.

Rhingia binotata, Brun.

The ♂ was described by me from a specimen in my own collection from Darjiling, since when a perfect example has been acquired by the Indian Museum from Kurseong.

A ♀ occurs in the Abor collection from the banks of the Siyom River, near Yekshi, taken 3-ii-12. It resembles the ♂; the frons is one-fifth of the head, dark grey, of uniform width, the general colour less bright, the thorax rather more grey than yellowish grey, and the general pubescence grey instead of yellow.

Rhingia sexmaculata, mihi, sp. nov.

♀ Assam. Long. 8 mm.

Head.—Frons rather more than one fourth the width of the head, just perceptibly narrower at vertex, the ground colour aenous, brownish yellow-dusted, with short, comparatively fine, black hairs. Ocelli red, distinct, placed in an impressed triangle. Face immediately below antennae, concolorous, the snout orange, comparatively short, being only as long as the lateral width of the eyes; haustellum blackish, the mouth parts brownish yellow. Antennal protuberance of moderate size, concolorous with frons; antennae wholly orange, upper margin and tip of 3rd joint very narrowly brownish, arista black.

Thorax.—Ground colour aenous, brownish yellow-dusted. Two narrow, closely approximated narrow median lighter stripes, and an outer under stripe each side, none of the stripes very obvious. Scutellum concolorous, posterior margin very narrowly brownish yellow; dorsum with a few short black hairs. Sides of thorax concolorous, a little pale yellow hair about the pleurae and wing bases.

Abdomen.—Blackish; 1st segment pale whitish yellow except for the dark posterior corners; 2nd, 3rd and 4th segments each with a pair of well-separated oblong yellowish spots (about as wide as one-third the length of the segment), placed towards but not on, the anterior margin, their extremities attaining the lateral edges of the segments. A little yellowish hair at the sides of the abdomen, basally ; belly blackish.

Legs.—Brownish yellow ; coxae, and, to a slight extent the extreme base of the femora, black ; tarsi tips a little brown ; the femora with a very little pale hair.

Wings.—Clear-yellowish grey ; stigmatic region of subcostal cell yellowish ; tegulae brown with yellow fringe ; halteres brownish yellow.

Described from one ♀ from Dibrugarh, 17-xi-11.

Graptomyza brevirostris, Wied.

One ♀, Rotung (1400 ft.), on bank of Dihang River, 25-xii-11. There is another specimen in the Indian Museum from the Nilgiri Hills.

Graptomyza ventralis, Wied.

A ♀, which appears to be the typical form of this species, from Rotung, 26-xii-11.

G. ventralis, W ; **nigripes**, mihi, var. nov.

This form differs from the normal one by the partly black femora, instead of being honey yellow. The anterior pairs have the apical half black except for the very narrowly yellow tips ; in the hind pair the black is more extensive. The middle and hind tarsi are brownish yellow, with only the last joint black.

One ♀, Sadiya, 27-xi-11.

Helophilus bengalensis, Wied.

One ♀, Dibrugarh, 17–19-xi-11. It shows a slight variation from the typical form as the antennae and antennal protuberance are both wholly black ; also the inverted V-shaped mark on the 4th abdominal segment is hidden by a triangular black spot.

Sericomyia eristaloides, mihi, sp. nov.

♀ N.E. Frontier of India. Long. 13 mm.

Head.—Frons barely projecting in profile beyond eyes ; face moderately swollen, the protuberance elongate and not conspicuous ; haustellum somewhat thick and long, the mouth parts blackish. Frons, at a line drawn through the base of the antennae, one-third as wide as the head, narrowing considerably at

vertex; the upper half barely shining, black; ocelli distinct, red, set on the surface of the frons, enclosed by a slightly impressed line; lower half of frons brownish yellow-dusted. The whole frons with long soft black hairs, which towards and on the vertex become dark brown. Whole underside of head, and face from parallel with the antennae, yellowish pollinose, the central bump dark brown (a little lighter in the centre), with a fairly wide black stripe on each side of it. Some black hairs towards the sides of the central bump, and a little short bright yellow hair on the other parts of the underside of the head, including the two black stripes. Antennae without any protuberance; a small shining rich mahogany-brown triangle immediately above and contiguous to their roots. The 1st antennal joint shining black, the 2nd nearly quadrate, viewed from in front, with a few stiff black hairs, 3rd joint much wider than 2nd, twice as long, quite bare, dark reddish-brown, oval, a little whitish dust on underside; arista long, yellow, plumose above and below, the upper rays distinctly the longer. Occiput ash grey, nearly whitish on ocular orbits, which on the upper half of the head do not project beyond the margin of the eyes themselves, but they do so on the lower half, where they bear long white hair.

Thorax.—Dull brownish, barely shining, and with the sides brownish grey; the whole rather thickly covered with yellowish brown hair. Scutellum brownish yellow, paler on hind margin; dorsum with brown hairs at base which become yellow and longer towards the tip; underside with a fringe of soft whitish yellow hairs.

Abdomen.—The 1st segment whitish yellow, the remainder blackish; 2nd yellowish on anterior corners, 2nd, 3rd and 4th with an uninterrupted rather narrow yellowish band just before the middle and reaching the lateral margins or nearly so. All the bands of the same width; 5th segment all black. Some long soft yellow hairs at the sides at the base. Surface of abdomen with very short pubescence concolorous with the ground-colour; a fringe of very short yellow hairs on hind margin of each segment, most conspicuous on the 4th segment, and the extreme edges of the segments themselves, brownish yellow. Genitalia consisting of a short cylindrical tube, from which emerge two oval brownish yellow lamellae.

Legs.—Coxae black. Fore femora black, with a yellow streak on hinder side, middle femora yellow, with a wide black streak on front side, hind femora with basal half brownish yellow, and apical half black; all the femora with a little pale yellow hair; the hind femora with a number of stiff black bristles of different lengths below, on apical half. Tibiae mainly black, fore pair at base, and middle pair at base and tip yellowish; hind tibiae black; all tibiae with close pubescence, which is brownish yellow on the front side of the fore tibiae, and whitish on the hinder side, where it is much longer; hind tibiae with very short pubescence which is black in front and whitish on hinder side. Tarsi black or

dark brown, with short golden yellow pubescence; hind pair with rich golden brown pubescence below.

Wings.—Pale grey; a small brownish yellow infuscation in the middle from the costa and the brown stigma, reaching posteriorly to the 4th longitudinal vein. Tegulae and halteres brownish yellow.

Described from a single ♀ taken between Renging and Rotung (2200 ft.), 20-xi-11.

N.B.—Although with the general appearance of an *Eristalis*, this is a true *Sericomyia* in every character.

Chrysotoxum sexfasciatum, Brun.

One ♂ taken between Rotung and Kalek (2000–3500 ft.), 14–15-iii-12. In this specimen the antennae show hardly any red at their base, and the antennal protuberance is wholly shining black. In all other respects it meets the description exactly.

Mixogaster vespiformis, mihi, sp. nov.

(Pl. vi, figs. 8-10).

♀ Assam. Long. barely 8 mm.

Head.—Frons about half as wide as the head, with parallel sides, black, closely wrinkled; the dull-red eyes, bare. seen in profile, not attaining either the upper or lower limits of the head. Face with short bright yellow hair; a narrow reddish brown stripe across the frons, from eye to eye, immediately above the antennae. The vertex gently curved, the whole of the face quite flat. Antennae reddish brown, absolutely bare; 1st joint moderately long, elongate, 2nd very short (easily overlooked), 3rd about six times as long as the 1st, elongate, slender, sub-cylindrical, very slightly thickened beyond the middle, and tapering to a blunt point, the whole antenna as long as from the frons to the tip of the scutellum. A bare, comparatively small, curved arista near the base of the 3rd joint. This joint is bent backwards across the eyes after the fashion of Aculeate Hymenoptera. Back of head blackish, a little bright yellow hair behind the eyes.

Thorax.—Bright red, with a median black stripe about one-third the width of the dorsum. Sides blackish with a stripe of bright yellow hair from the ends of the transverse suture nearly to the legs; posterior margins of the dorsum with yellow hair. Scutellum black, covered with bright yellow hair.

Abdomen.—The 1st segment narrowed immediately after the base, black, the posterior border reddish brown; 2nd segment at base of same width as the tip of the 1st, but from its middle rapidly widening; 3rd segment widening still further, the greatest width of the abdomen being at the juncture of the 3rd and 4th segments, after which it rapidly narrows. The 2nd segment black on basal half, with a peculiar dirty milk-white stripe each side of the median line; apical half of segment reddish brown,

with a fringe of short bright yellow hairs on posterior margin. The 3rd and 4th segments mainly blackish with very short bright yellow hairs, the sides of the former obviously but not conspicuously reddish brown; the tip of the abdomen similarly coloured. Belly blackish, whitish at base, the genitalia orange.

Legs.—All coxae black; remainder of anterior legs brownish yellow, the tibiae with some whitish reflections. Hind legs black, knees brownish yellow, and tarsi tips yellowish, the tibiae and tarsi with minute whitish pubescence. Underside of hind tarsi brownish yellow.

Wings.—Pale grey, stigmatic cell yellowish. A blackish infuscation at tip of wing from about the tip of the 1st longitudinal vein to just below the 3rd vein. The appendix in the 1st posterior cell very distinct. Halteres bright lemon-yellow.

Described from a single ♀ from Dibrugarh, 17–19-xi-11.

N.B.—This peculiar genus is only previously known from Australia, Mexico, Central America and Brazil. All the species must possess a more or less vespiform appearance from the remarkable resemblance in the 3rd antennal joint being bent back as is usually the case in Aculeate Hymenoptera.

MUSCIDAE.

1st Division CALYPTRATA.

TACHININAE.

Of this sub-family six species are present, represented by eight specimens, but there are no means available for determining them. Two specimens of a species of *Sarcophaga* are present.

MUSCINAE.

Of *Muscidae verae* six species are represented.

Rhinia limbipennis, Macq.

Four ♀ ♀; Sadiya, 23-xi-11. Occurs in various parts of India and Assam.

Rhynchomyia (*s. lato*).

Four ♀ ♀ of a *Rhynchomyia* in the wide sense, from Sadiya, 23–28-xi-11 and Kobo (400 ft.), 1-xi-11.

Pyrellia violacea, Macq.

Eight specimens, representing both sexes, of what I have always regarded as this species; Sadiya, 28-xi-11. It is commonly distributed in India.

Philaematomyia insignis, Aust.

Dibrugarh, 17–19-xi-11 and Sadiya, 25-xi-11, some taken by "sweeping *Artemisia*," seven specimens in all, both sexes. A very widely distributed species of "blood-sucking fly," found in India, Ceylon, Sokotra, Cyprus, Palestine, Senegal, Congo Free State, Burma, Assam, Borneo.

N.B.—Of the remaining true Muscids there are 5 of a species of *Lucilia*, ♂ ♀ ; and several of both sexes of a species of *Musca* allied to *domestica*, L.

ANTHOMYINAE.

Ophyra caerulea, mihi, sp. nov.

♂ ♀ N.E. Frontier of India. Long. 4 mm.

Head.—Eyes not quite touching in ♂, for some little distance ; frons dead black ; face black, with a greyish shimmer if viewed from certain directions ; the eye margins with a row of bristles along the distance of greatest contiguity, that is, from the lowest point of the small triangular frons to the brilliant white spot above the root of the antennae. This spot is semicircular in outline on its upper side and pointed below. Antennae blackish, not reaching mouth opening, without greyish shimmer ; proboscis and palpi blackish.

In the ♀ the frons is one-third the width of the head, blackish, but with a brownish yellow tinge. (This may be due to the head having been moistened).

Thorax.—Shining indigo blue, the colour less bright on the sides in the region below and behind the wing base, and below the shoulder where it is more or less dirty brown-tinged. A very distinct small cream-yellow spot on the humerus.[1] Dorsum of thorax with rather thick blackish brown hair. Scutellum concolorous, a pair of post-basal bristles and a pair of long convergent apical ones.

Abdomen.—Rather narrow, shining indigo blue ; when viewed from in front a little brownish about the base. Belly pale dirty brown.

Legs.—Dull yellowish brown, pubescent ; tarsi black, the inner sides of the femora lighter (?).[2]

Wings.—Clear, veins yellowish ; tegulae whitish with short white fringe ; halteres black.

Described from a single ♂ and ♀ from Rotung, 1400 ft., 31-xii-11.

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[1] In the ♀ the humeri are darkened, but this may be due to accident, the front part of the specimen shewing signs of having been wetted.

[2] This is so in the ♀ example, but may be individual variation, or perhaps the more normal colouration, or even a sexual difference, though this latter seems unlikely.

N.B.—This species differs from all other Eastern ones by the brilliant blue colour, its yellowish shoulder spots, and rather smaller size. It is near, but quite distinct from, the European *O. anthrax.*

Limnophora kempi, mihi, sp. nov.

♂ Assam. Long. 3 mm.

Head.—Eye margins narrowly pale yellowish grey, the width not uniform but continued with extreme narrowness to between the points of greatest contiguity of the eyes. The whole of the remainder of the front part of the head very pale grey-dusted with a slight bluish tinge. Two or three short bristles on upper part of eye margin, alongside of the dull-reddish brown frontal triangle. Vertical triangle dark grey, a few short bristly hairs, the three ocelli very small, brilliantly shining ruby-red, placed on extreme angles of the triangle. A longer pair of bristles just behind the vertex, convergent, placed one behind each corner of the ocellar triangle. Antennae black, arista microscopically pubescent only. A pair of strong oral vibrissae. Back and underside of head dark grey with short stiff black hairs. Proboscis black; palpi black, slender, rather long, slightly enlarged at tips.

Thorax.—Pale cinereous grey (centre part damaged by pin), with at least four rows of bristles of various sizes. There are three stronger ones in the humeral region, four more or less in a row from below the humerus to the wing root, three or four above and in front of the wing. Scutellum concolorous, with three pairs of bristles, one post basal, near the sides, a smaller pair near the middle of the dorsum, and a long apical pair.

Abdomen.—Dark grey, the dorsum of the segments appearing more or less darker according to the angle at which they are viewed. Surface of abdomen covered with soft black hairs and a row of stronger bristly hairs near posterior border of each segment.

Legs.—Dark brownish black, shortly pubescent; femora and tibiae with numerous spines and bristles; all tibiae with a circlet of spines near tip.

Wings.—Colourless, squamae yellowish white; halteres yellow.

Described from one ♂ from Sadiya, 25-xi-11.

Lispa ? pallitarsis, Stein.

Two specimens from Dibrugarh, 17—19-xi-11, agree so closely with the description of this species that it seems likely they are identical, although disagreeing in one or two points. They agree in the shining black unmarked thorax, in the absence of strong bristles in this part except towards the sides, in the black face and antennae, in the oblong or sub-cylindrical abdomen with a narrow whitish mark on the anterior margin towards each side of the 2nd to the 4th segments. This character alone is quite

unusual in the genus. They also agree in the last four joints of the fore tarsi being whitish yellow. The palpi are pale yellow, but in Stein's species they are black or "rarely dirty yellow," but as he described from only three specimens the "rarely" is somewhat discounted.

In the face of such close agreement it is impossible to describe the present form as distinct, yet I cannot decide for certain that it represents *pallitarsis*. The latter was described from Java.

The remaining *Anthomyidae* consist of 4 species of *Spilogaster*, each represented by a single specimen only, and two specimens of a *Coenosia*.

Many species have been described of both these genera and on such small material it seems inadvisable to add to the number.

2nd Division ACALYPTRATA.

BORBORINAE.

Limosina magna, mihi, sp. nov.

N.E. Frontier of India. Long. 3 mm.

Head.—Wholly black. Eye two-thirds the vertical height of the head. Antennae dark reddish brown; 3rd joint large, oval. with microscopic yellowish grey pubescence and very long black shortly pubescent arista, situated at its upper corner; 2nd joint strongly projecting over the 3rd on the inner side with a circlet of strong spines. Two rows of dorso-frontal converging bristles placed so as to divide the frons into three nearly equal parts; of these the middle ones seem the larger but both the exact number and their size appear variable. A pair of strong proclinate bristles on ocellar triangle, which is black, and barely distinguishable from the frons. Four pairs of strong long orbital bristles, the upper pair diverging, near vertex and upper corner of eye; the 2nd pair set midway between the frontal triangle and the eye margin, strongly converging, and on a level with the ocellar ones; the 3rd and 4th pairs in a line with the upper pair, contiguous to eye margin and opposite the strongest of the dorso-central bristles. A pair of converging vertical bristles, set rather widely apart and a diverging pair near the eye corners. Underside of head blackish, mouth opening very large, projecting well forward on upper side. A double row of stiff bristly hairs on each side, the uppermost, a very strong bristle, directed forwards, placed between the lower anterior corner of the eye and the oral margin. A still more powerful one at lower corner of mouth opening, directed perpendicularly, and a much smaller one at the same spot directed downwards. Some bristles (at least a pair on each side) can be perceived in the mouth opening, but it is not obvious if they are affixed to the root of the mouth or to the proboscis, which latter is withdrawn, blackish, with very large ribbed yellow labella; palpi reddish yellow, moderately short, very slender.

Thorax.—Blackish, shortly pubescent with stiff short hairs, (bristles, mostly broken off). One or two weak dorso-central ones remain and a strong pair on posterior margin. Scutellum, metanotum and sides of thorax blackish, the first with the usual basal and apical pair of strong bristles.

Abdomen.—Blackish, shortly and apparently barely pubescent.

Legs.—Coxae brownish yellow, marked with blackish; femora black, brownish yellow at base and tips; tibiae and tarsi brownish yellow, hind tibiae with a blackish indistinct ring towards tip; hind metatarsus dilated, blackish at base. Middle tibiae with several strong but quite conspicuous bristles.

Wings distinctly yellowish, a little darker anteriorly; halteres yellow.

Described from a single specimen from Kalek, 3800 ft., 29-xii-11.

Limosina subtinctipennis, mihi, sp. nov.

Assam. Long. 1 mm.

Head.—Frons blackish.grey, a little reddish brown above the antennae; three or four small dorso-frontal bristles; four pairs of orbital bristles, situated as in *L. magna*, but the two lower pairs relatively smaller; a pair of proclinate ocellar bristles. Antennae dark brownish yellow, 2nd joint, relatively large, as large as 3rd, which is oval at the tip with a circlet of bristles; arista pubescent.

Thorax.—Black with short stiff hairs; three bristles below shoulder a very strong supra-alar bristle and one below the wing; several stiff bristly hairs on hinder part of dorsum, the dorso-central bristles (if present) apparently weak. Scutellum with a post-basal pair set on the margin, a much smaller inner pair and a strong apical pair.

Abdomen.—Black, dull, bare, except for a few soft side hairs. Belly similar.

Legs mainly yellow; femora, especially the hind pair, more or less brown, except at base and tip; tibiae with two more or less indistinct equidistantly placed blackish brown rings, which are quite distinct on the hind legs. Hind metatarsus emarginate near base so that it appears as a small thumb. Middle tibiae with numerous strong spines of different lengths, and a strong preapical one; middle tarsi with first two joints bearing a circlet of spines at tip, the middle metatarsus with an additional bristle in the middle on inner side. Hind tibiae with only stiff hairs of different lengths.

Wings.—Grey a slightly clearer transverse streak just beyond discal cell, which cell, with the basal cells, are also slightly clearer The veins with a suspicion of suffusion; halteres yellow.

Described from a single specimen from Dibrugarh, 17–19-xi-11.

HETERONEURINAE.

Trigonometopus trilineatus, mihi, sp. nov.

(Pl. vi, fig. 11).

Assam. Long. 3–3¼ mm.

Head.—Frons flattened, horizontal (generic character); at its narrowest part, which is opposite the frontal bristles, more than one-third the width of the head, widened rapidly at vertex, brownish yellow. Ocellar triangle well below vertex, small, black. A single pair of frontal bristles just below narrowest part of frons, and removed from eye margins. Two sub-triangular brownish marks on frons placed, so to speak, base to base, but separated from each other, situated midway between the ocellar triangle and the base of the antennae. Two pairs of vertical bristles, the median pair converging, the outer pair, near the corners of the eyes, diverging. Occiput wholly yellow, with a few soft yellow hairs. Face very retreating, with a deep groove each side near the eyes (both generic characters). These grooves and a median stripe are dark brown and very conspicuous, extending from the base of the antennae to nearly behind the eye, and to the mouth opening. Cheeks with a row of about six bristles, placed behind the ends of the facial groove. Proboscis and palpi concealed, brownish yellow the latter moderately long, cylindrical, slender. Antennae brownish yellow 1st and 2nd joints with a row of spines at the tip; 3rd as long as 1st and 2nd together, bare, except for miscroscopic pubescence, and with a long black pubescent arista inserted on the inner side. A small black spot between the eye margin and the base of the antennae, contiguous to both.

Thorax.—Dull brownish yellow, violet-grey-dusted seen from certain directions, and with two narrow, well separated median brown stripes from anterior to posterior margin where they nearly or quite meet, and are then continued as a single broad stripe to the tip of the concolorous scutellum. Sides of thorax mainly yellowish, but brownish about the shoulders and from there to the wings, the colour probably extending in individuals to a varying extent. Three pairs of dorso-central bristles, of which the most anterior pair are placed but little in front of the middle of the thorax; a row of four similar bristles from shoulder to root of wing; two mesopleural, one sternopleural, all three weak. A pair of strong lateral scutellar bristles placed midway between base and tip, and a pair of strong apical ones also.

Abdomen.—Brownish yellow, blackish at base, and apparently here and there elsewhere; shortly black pubescent; belly more or less similar.

Legs.—Pale brownish yellow; fore femora with a number of stiff black hairs below; posterior femora nearly bare, and with a small bristle near tip; all tibiae with a preapical bristle. Legs generally shortly pubescent.

Wings.—Pale grey, slightly clearer here and there; veins rather indistinct except the 3rd and 4th longitudinals (which however become very weak at their tips), and the posterior cross-vein; these three veins being very conspicuous. A sub-apical smoky band of moderate width begins just below the costa, above the tip of the 2nd vein, and nearly reaches hind border of wing. Auxiliary vein quite distinct throughout from 1st longitudinal, which ends but little beyond it, distinctly before middle of wing. The 2nd vein ends towards wing tip, the 3rd at the rounded wing tip, the 4th just below, these two latter veins parallel. Anterior cross-vein slightly infuscated, a little before middle of wing; posterior cross-vein erect, a little before midway between anterior cross-vein and wing margin; anal cell large, rather clearer in middle.

Described from two specimens from Sadiya, 23-xi-11.

N.B.—Apparently only four species are at present known in this genus beyond the present one, the *frontalis*, Mg. of Europe and three from North America.

SCIOMYZINAE.

Sciomyza trypetoptera, Hend. (*Sapromyza*).

Sapromyza histrio, Meij.

Several specimens from Sadiya, 27-xi-11, Dibrugarh, 17–19-xi-11 and Kobo, 6-xii-11, cannot fail to be this species, but Hendel and Meijere refer it to *Sapromyza*. It appears to me a *Sciomyza*.

Sciomyza strigata, Meij. (*Lauxania*).

Five ♀ ♀ from Rotung, 1400 ft. (25-xii-11), agree exactly with Herr Meijere's description and wing figure of this species. Very near *S. quinquevittata*, Meij., of which the Indian Museum possesses a specimen from Java named by that author, but the two species are obviously distinct, and I cannot help regarding *strigata* as a *Sciomyza.*

Sciomyza ocellata, mihi, sp. nov.

(Pl. vi, fig. 12).

♀ Assam and N.E. Frontier of India. Long. 3 mm.

Head.—Cream yellow, with marks of a nearly uniform brownish colour placed as follows: an oval spot on frons, from each side of ocellar triangle nearly to base of antennae; a row of three round spots on frons between the oval spot and the eyes (the fronto-orbital bristles being set in these spots); a spot between base of antennae and eye margin, contiguous to both; and a row of three above the mouth opening, contiguous or sub-contiguous to one another, but placed clear of both mouth border and eye margins. Antennae brownish yellow, 3rd joint more or less brown-

ish, arista plumose. Proboscis rather long with large labella; palpi long, cylindrical, all pale yellow. Back of head blackish in middle. Three pairs of fronto-orbital bristles, the upper (and strongest) pair nearly on vertex; a pair of ocellar, a pair of small central vertical and a strong vertical bristle situated on the absolute margin, behind the corner of each eye. Smaller post-vertical bristles are present.

Thorax.—Brownish; maculated with numerous small light grey spots and short zigzag lines, the most conspicuous of the latter beginning on each side of the anterior margin and passing over the shoulder, below which it encloses at its end a round black spot.

Bristles: 3 dorso-central, 1 humeral, 1 post-humeral, 1 prealar, 1 sternopleural; numerous acrostichal bristles. The scutellum with one pair of post-basal (marginal) and a pair of widely separated apical ones. Scutellum generally brown with grey marks as the thorax, but all the marks are variable, so that in some specimens the ground colour may be considered light grey, and the markings brown.

Abdomen --Dark brown. The 1st segment mainly light grey with a triangular brown mark at base, and the hind margin brown spotted. Each of the remaining segments bear a pair of large light grey spots on the front border, approximately semicircular (emarginate on lower outer part) and bearing a distinct round black spot in each. Posterior margins of segments with bristles; surface of abdomen generally shortly pubescent. Belly dark, with grey markings.

Legs.—Pale yellow; posterior femora (especially hind pair) mainly brown or brownish for basal three-fourths, the intensity of the colour variable; bristles on lower sides of all the femora, longest and fewest on fore pair, weakest on hind pair. Tibiae and tarsi pale yellowish or pale brownish yellow, pubescent; hind metatarsi more or less brownish above; posterior tibiae with preapical bristle, middle tibiae with a few spines at tip.

Wings.—Blackish, with several semicircular or sub-triangular pale whitish grey spots around margin and numerous smaller similarly coloured spots over the disc. The larger spots are placed thus. An oval one on the costa (with a black spot in its middle), filling the costal cell as far as the auxiliary vein. Four spots on the costa, between tip of 1st longitudinal vein and tip of 2nd; of these, the first three are subtriangular, the first one separated further from the second than the latter is from the third, and in this intervening space a small yellowish costal spot, often indistinct; the fourth spot is more rounded. The remaining spots on the wing margin are more or less semicircular and approximately uniform in size. The submarginal cell has two (a large and a small one), the 1st posterior cell, two, the upper one the smaller and more triangular; the 2nd posterior cell has three, the uppermost the smallest. Behind the 5th longitudinal vein tip there are four on the wing margin, the first immediately behind the 5th vein tip and practically contiguous to

it. These spots vary from sub-triangular to semicircular. The spots on the disc are very small, though varying in size, and there is usually a row just in front of and another just behind the 2nd, 3rd and 4th longitudinal veins; those in the anal cell being the largest. Halteres dull pale yellow.

Described from 10 specimens; Kobo, 400 ft., 3-xii-11 (*type*), Sadiya, 28-xi-11, Rotung, 25-xii-11.

N.B.—One specimen only appears to be a male, but is in too bad a condition to set up as the type.

Sciomyza septemlineata, mihi, sp. nov.

(Pl. vi, fig. 13).

♀ N.E. Frontier of India. Long. 2½ mm.

Head.—Very pale yellow; frons from vertex to antennae broadly dark brown, leaving a rather wide ocular orbit each side. Two conspicuous round dark brown spots above mouth border. Proboscis pale yellow, palpi black. Antennal 1st and 2nd joints black, 3rd pale yellow, slightly brownish at tip, arista black. Back of head yellowish. Bristles normal; a row of short bristles behind each eye.

Thorax.—Brownish yellow; a broad median dark brown stripe from anterior to posterior margin, carried continuously over scutellum to its tip. Three lateral dark brown stripes each side of thorax; one from the shoulder, passing on inner side of wings, the second from just below the shoulder to the wing base, the third across the pleurae.

Abdomen.—Blackish, pubescent, bristles on hind borders of segments, belly blackish.

Legs.—Uniformly pale whitish yellow; bristles normal, as in *S. strigata*, Meij.

Wings.—Blackish brown, with pale spots as follows: a round spot below tip of 2nd longitudinal vein, not touching margin of wing; a squarish one near tip of 1st basal cell, extending a little above 3rd vein; a squarish one over 3rd vein just beyond middle of wing; a semi-oval marginal one at tip of 1st posterior cell, and three smaller ones arranged more or less in the form of a triangle, on distal half of same cell; a round one in middle of 2nd posterior cell; a rather large squarish one towards end of discal cell, extending above the 4th vein. Anal cell clearer. Halteres dirty grey.

Described from a unique ♀; Rotung, 1400 ft., 24-xii-11

SAPROMYZINAE.

Lonchaea montana, mihi, sp. nov.

♂ Assam and N.E. Frontier of India. Long. 3 mm.

Head.—Frons ¼ to ⅕ width of head; two frontal bristles on upper part, from the ocellar spot; a pair of long converging

vertical bristles and a pair of smaller outer diverging ones. Face with a little grey shimmer viewed from certain directions; proboscis and palpi black. Antennae dull black; from base of 2nd joint to tip of 3rd, exactly equal to half the height of the eye; 2nd joint with a single bristle above; arista very finely but not shortly plumose above and below. Back of head black.

Thorax.—Blackish with an aenous green tint and microscopic pubescence. A row of four bristles near posterior margin; 2 supra-alar, 2 notopleural, 2 sternopleural bristles. Sides of thorax dull black. Scutellum concolorous with thoracic dorsum; two post-basal bristles towards sides; a pair of converging apical ones.

Abdomen.—Dull black, with a suspicion of a faint aenous green tinge in certain lights; a little shining towards the base at the sides; very shortly pubescent. Belly black.

Legs.—Black, a row of bristly hairs below femora, remainder of legs shortly pubescent, as are the femora also.

Wings.—Pale but distinctly yellowish; halteres black.

Described from 3 ♂♂; Rotung, 1400 ft., 25—26-xii-11, and Sadiya, 23-xi-11.

This must be near Meijere's *aenea*, described from East Austria but not known to Schiner. It is rather larger, and seems to have affinities with more than one of Meijere's lately described species from Java.

Lonchaea, sp.

Two specimens in very indifferent condition represent a second species, noticeable by the reddish yellow antennae. Slightly but appreciably larger than *L. montana*. From Kobo, 400 ft., 3-xii-11, and Dibrugarh, 17—19-xi-11.

Lauxania flavicornis, mihi, sp. nov.

Assam. Long. 3 mm.

Head.—Frons shining black, the sides parallel, distinctly but not greatly more than one-third the width of the head. A median velvet-black stripe from vertex, gradually narrowing on reaching base of antennae; the very distinct but small yellow ocelli placed on this stripe well below the vertex. Antennae orange-yellow, normally shaped, the 2nd with a few bristly hairs at tip, 3rd very elongate cylindrical, nearly twice as long as first two joints together, black, with a long white arista which is yellowish at its base and microscopically plumose. Two pairs of dorso-frontal bristles, the upper pair just below the ocelli, situated half-way between the velvet-stripe and the eye margin, the lower pair half-way between the upper pair and the base of the antennae, set rather more widely apart.

A pair of long, converging vertical bristles placed midway between the velvet-stripe and the eye margin; a pair of similar ones outside of these, and a pair of very small ones immediately behind middle of vertex. Occiput black, a little behind vertical

corners of eyes. Underside of head shining black, very smooth, slightly swollen; proboscis and palpi concealed, black.

Thorax.—Wholly shining black (bristles mostly damaged); three or four dorso-central, one or two supra-alar and the usual basal and apical pair on the scutellum are visible Scutellum and metanotum shining black.

Abdomen.—Shining black, minutely pubescent.

Legs.—Fore femora brownish yellow, becoming blackish on apical third or half, middle femora black, broadly brownish yellow at base and tip, hind femora black up to the middle or a little beyond, remainder brownish yellow. Fore tibiae black on basal half, the remainder whitish; fore tarsi black. Posterior tibiae and tarsi brownish yellow, hind metatarsus a little brownish above. Posterior tibiae with one preapical bristle.

Wings.—Pale yellowish, veins yellow, halteres whitish with black knobs.

Described from a single specimen from Sadiya, 25-xi-11.

Drepanephora multimaculata, mihi, sp. nov.

(Pl. vi, figs. 14-15).

? ♂ N.E. Frontier of India. Long. 3 mm.

Head and appendages entirely very pale yellow except for a little brown at the base below the head, for the black occiput, which is perpendicular, and for the upper side of the antennae which is narrowly dark brown, with thickly pubescent arista, the latter black. The vertex is in the form of a truncated cone.[1] Three pairs of fronto-orbital bristles, the uppermost pair practically on the vertex; a pair of vertical bristles, close together, immediately behind the ocelli, which latter are brown, closely approximated, each bearing a bristle. A row of rather short bristly hairs along the cheeks. The 2nd joint of the antennae has the normal single long bristle above, and two or three of different lengths below. Proboscis well developed, perpendicular; palpi long, cylindrical, with a few stiff hairs.

Thorax.—Pale brownish yellow, with numerous moderately stiff hairs. On each side of the dorsum are four very conspicuous elongate black spots, the anterior one over the shoulder, the fourth ending in the wing-base, the other two intermediate and equidistant. On the pleurae each side, in a line with the coxae, are four similar black elongate spots or short stripes, the two posterior ones bifid at the upper end.

Abdomen.—Pale brownish yellow with a broad blackish brown median stripe occupying one-third the width of the segments, terminating at the end of the 4th segment. Soft hairs cover the surface of the abdomen, and a row of long stiff hairs on the posterior margin of each segment. Belly pale yellowish, nearly bare.

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[1] As illustrated by Hendel, Gen. Ins. Fasc. 68, pl. I, fig. 1.

Legs.—Pale yellow; fore femora with two dark brown bands (which give the impression that in some individuals they may be incomplete), placed, one at the base, the other at the middle. Posterior femora with a subapical band, not always complete below; all the tibiae with two narrower bands dividing the limb equidistantly; tarsi all pale yellowish. All the femora with long soft hairs on underside; tibiae with shorter soft hairs, and hind tibiae with three preapical bristles.

Wings clear, with narrow brown streaks from the costa to the hind margin. The first two very narrow, the 3rd slightly widening towards the hind margin; the 4th is bifid on the costa, single at the 2nd longitudinal vein, and extending only to the 5th vein. The 5th streak has three endings on the costa, the distal two uniting at the 2nd longitudinal vein, the proximal one uniting also at the 3rd vein; the band being almost interrupted in the discal cell, and reaching the hind margin of the wing broadly, half way between the tip of the 5th vein and the anal angle. The remaining wing marks may be best described as a streak (longitudinal to the axis of the wing) between the 2nd and 3rd veins at the end of the wing, and a streak each on the last fourth of both the 3rd and 4th longitudinal veins, these three streaks being united proximally by a narrow oblique band which continues over the posterior cross-vein to the wing margin, where it broadens and runs along the margin of the 2nd posterior cell. The hind border of the wing is also brown except narrowly between the hinder terminations of the 3rd and 5th bands (the 4th does not reach the wing margin). The tip of the 2nd vein is darkened but not suffused; the costa is brown on the parts where the bands begin, otherwise clear. Halteres pale yellow.

Described from one specimen (? ♂) from Rotung, 1400 ft., 27-xii-11, under leaf stem of plantain.

Camptoprosopella notatifrons, mihi, sp. nov.

(Pl. vi, figs. 16-17).

♂ ♀ N.E. Assam. Long. $3\frac{1}{2}$ mm.

Head.—Wholly orange yellow or brownish yellow, except for a more or less quadrate lemon-yellow space touching the vertex. Frons distinctly more than one-third the width of the head, with a large jet-black circular spot from the vertex reaching more than half way to the base of the antennae, and a similar round spot each side of the face a little below the antennae. Antennae concolorous, 3rd joint elongate, the thickly pubescent black, basally situated arista very conspicuous, as long as the 3rd joint Proboscis brownish yellow, palpi very small, cylindrical, black, with a bristly hair or two. A row of three fronto-orbital bristles, each set in a small brown spot on the frons, but the upper pair practically on the vertex; post vertical bristles close behind these latter, divergent.

Thorax.—Brownish yellow, with four well-separated very thin black lines which fade away at or just behind the middle of the dorsum; pleurae a little lighter. Bristles (mostly damaged) comprise at least one post-humeral, one mesopleural (notopleural?), one supra-alar and one or two dorso-central; there being a row of four near the posterior margin of the dorsum. Scutellum and metanotum brownish yellow, former rather elongate, with bristles beyond the base each side, and an apical pair.

Abdomen.—Brownish yellow, 1st segment paler; segments towards sides, especially on apical half of abdomen, more or less brown or blackish brown; sometimes a small round black spot each side on dorsum of penultimate segment. Belly brownish yellow. The colour of the whole abdomen varies in shade in individual specimens. The ♀ (?) has a long thick conical bisected process curled under its belly.

Legs.—All brownish yellow, minutely pubescent, tarsi darker.

Wings.—Distinctly brownish yellow, unmarked; venation in conformity with Hendel's figure (Gen. Ins. Fasc. 68, pl. I, fig. 11); haltereres pale yellowish.

Described from four specimens, Sadiya, 23—28-xi-11.

Stenopterina flavofemorata, mihi, sp. nov.

♂ N.E. Assam. Long. 7 mm.

Head.—Frons less than one-third of the head, blackish; face blackish, dull brownish yellow about the cheeks and immediately below the antennae; of the latter, the two basal joints are dull brownish yellow, the 3rd blackish grey with microscopic grey dust, the arista yellowish and minutely pubescent at base, the remainder being black and bare. Back of head black, slightly shining, a little grey-dusted around the eyes, both narrowly on the frons and on their hinder margin. Proboscis rather bulky, brownish yellow, blackish in parts. A pair of median converging, and a pair of outer diverging vertical bristles; (frontal bristles broken off).

Thorax.—Dorsum dull aenous green, with a pair of obvious but not very distinct, approximated, moderately narrow grey stripes from anterior margin to near posterior border; shoulders bluish violet tinged. Sides dull aenous green, the hinder part of the sternopleura blackish with miscroscopic grey dust; scutellum and metanotum dull aenous green, former with the two normal pairs of bristles.

Abdomen.—Ground colour black, with, when viewed from certain directions, a dark violet tinge; covered with miscroscopic yellowish grey hairs.

Legs.—Coxae blackish grey, a little grey-dusted, brownish yellow at tips; femora wholly brownish yellow except for a small (possibly variable) blackish streak on underside of hinder pair; tibiae and tarsi all black, underside of hind tarsi with minute golden yellow pubescence.

Wings pale grey. Costa as far as auxiliary vein quite clear, thence narrowly blackish up to just beyond the tip of the 4th longitudinal vein. A median blackish longitudinal streak fills the 1st basal cell, and extends in attenuated form to the upper end of the posterior cross-vein; 2nd basal, anal and discal cells, and remainder of wing wholly clear. Halteres dirty yellow.

Described from a single ♂ from Sadiya, 25-xi-11.

Stenopterina aenea, Wied.

One specimen from Dibrugarh, 17—19-xi-11, is either this species or *eques*, Sch., and I am not convinced that these two forms are really distinct. Yet when describing *eques* (from six specimens) Schiner had also before him three examples that he referred to *aenea*. The characters he draws do not seem at all consistent. There is much variation in a small series in the Indian Museum which I had previously referred to *aenea*, and a close approximation to two specimens sent by Herr Meijere from Java as *eques*. The amount of reddish colour in the face, about the mouth, on the antennae and occasionally the frons also, and also its extent at the femora tips. the length of the median longitudinal black streak on the wing, the violet or bluish shoulder tips and other characters all seem liable to variation independently of one another.

Nerius obscurus, mihi, sp. nov.

♀ N.E. Frontier of India. Long. 6½ mm. (excl. ovipositor).

Head.—Chocolate brown on frons and upper side of neck; sides of head dark brown, very shining. Underside of head, proboscis and palpi yellowish. Antennae with 1st and 2nd joints subequal, 3rd a little longer, tip rounded, arista white, yellow at base (a character common to several species); the antennae brownish yellow, more or less marked with black, especially on upper side of all three segments.

Thorax.—Yellowish brown; dorsum, sternopleurae and metanotum chocolate brown.

Abdomen.—Dark chocolate brown; ovipositor two-thirds the length of the abdomen.

Legs.—Coxae brown, femora brownish yellow, with narrowly black tips and a narrow yellow ring, incomplete below, just before the black tips. All femora with a row of minute bristly hairs below, from base to tip, weakest on hind legs; middle femora without any very short stiff bristly hairs on upper side towards base. Anterior tibiae dark brown, hind pair lighter; all tarsi black.

Wings.—Yellowish; 3rd longitudinal vein nearly straight, 4th approximating normally to 3rd at the tip. Tip of 2nd vein, of the 3rd and 4th veins jointly, and both cross-veins very faintly

but perceptibly darkened. Halteres whitish yellow, a little brownish at tips.

Described from one ♀ : Rotung, 1400 ft., 26-xii-11.

N.B.—From the narrow yellow ring on the femora this species must be near *annulipes*, Dol., but that species has both the fore femora slightly but distinctly thickened and the fore tibiae conspicuously dilated. The synonymy of *tibialis*, Dol., with *annulipes* is not mine but from Doleschall's figure of *tibialis* it evidently stands out by the peculiar construction of its forelegs from all other eastern species of the genus, yet he does not mention this character in his description of *annulipes* ; in which he says all the femora have a reddish ring.

CELYPHINAE.

Celyphus scutatus, Wied.

Five specimens from Sadiya, 23-xi-11, and Rotung, 1400 ft., 25-xii-11. In the Indian Museum in plenty from Calcutta, Tenasserim, Upper Burma and the Nilgiris.

Celyphus ? lucidus, Karsch.

Five specimens appear to be this species. The species is represented in the Indian Museum by a considerable number from various localities, but I cannot identify it with any of the older descriptions. As Karsch notifies *lucidus* from Ceylon, differentiating several new species in a table but giving no further description of it, I here append some notes from the specimens before me.

Brownish yellow ; antennae similar, 2nd joint with a circlet of short bristly hairs near base, arista thickened for three-fourths of its length, and of a dirty blackish grey colour Thorax, viewed from certain directions, with a light but obvious aenous blue-green tinge. Scutellum granulated at sides but hinder part nearly or quite smooth ; a faint but distinct middle, pale, very narrow line. Colour of abdomen varying from brownish yellow to blackish Legs brownish yellow, fore femora with a few bristles below. Wings and veins yellowish.

The Abor specimens were taken as follows : Rotung, 25-xii-11 ; Sadiya, 27-xi-11 ; Kobo, 3-xii-11 ; and Dibrugarh, 17—19-xi-11.

DIOPSINAE.

Diopsis indica, Westw.

Rotung, 1400 ft., 25-xii-11 ; Dibrugarh, 17—19-xi-11. Six specimens. The Indian Museum has a series taken by Mr. Kemp on the Assam-Bhutan Frontier in December, 1910 ; also others from Bhim Tal, Naini Tal, Tenasserim and Rangoon.

TRYPETINAE.

Ptilona dunlopi, Wulp.

Dibrugarh, 17—19-xi-11 ; one ♂, two ♀ ♀ In these specimens the wing marks agree exactly with Van der Wulp's plate ; his type coming from Padang.

Rioxa, sp. nov.

One ♂, Dibrugarh, 17—19-xi-11.

This is identical with a new species to be described by Prof. Bezzi in his forthcoming paper on Indian *Trypetinae*.

Acidia fossata, F.

One ♂, Kobo, 400 ft., 7-xi-11. Described from Tranquebar. In the Indian Museum from Travancore, Tenasserim, Assam and Sukna. This species has been referred to the genus (sub-genus) *Anomoea*, Walk.

Sphenisco myia sexmaculata, Macq.

Sadiya, 23-xi-11, one specimen. Described from Sumatra. In the Indian Museum from Naini Tal, Calcutta and Sarawak, and I have taken it myself at Batavia.

Themara maculipennis, Westw.

One ♂, Kobo, 400 ft., 1-xii-11. Evidently a somewhat widely distributed species, as it occurs in Singapore, Java, Borneo, Amboina and other places.

SEPSINAE.

Sepsis indica, Wied.

One ♂, Dibrugarah, 17—19-xi-11. A widely distributed common Oriental species.

Sepsis viduata, Thoms.

Three ♀ ♀, Dibrugarh, 17—19-xi-11. Extensively distributed in the East.

Sepsis bicolor, Wied.

Kalek, 3800 ft., 29-xii-11, by sweeping. A very widely distributed species in the East, extending to China.

Sepsis coprophila, Meij.

Kalek, 3800 ft., 27-xii-11, by sweeping. A widely distributed species at least in India ; described originally from Java.

MICROPEZINAE.

Calobata trifascipennis, mihi, sp. nov.

(Pl vi, fig. 19).

♂ ♀ Assam. Long. 10 mm. (excl. ovipositor).

Head.—Frons shining black, with a brilliant dark blue tinge on lower part; a velvet black spot on the frons, elongate-triangular in shape, its apex at the vertex, and with a small triangular prolongation at its lower extremity; the minute ocelli set just before the apex of the spot. Face dull blackish, a little brownish yellow on lower margin of eyes, around the mouth border and immediately below the antennae. Proboscis and palpi blackish, antennal 1st and 2nd joints blackish, 3rd dull brownish yellow, with microscopic greyish pubescence; arista black, minutely pubescent at base, where it is yellowish. Back of head shining brownish black, the normal pair of vertical bristles and a pair of post-vertical ones. (In the type there is a supplementary very short bristle in front of one of the vertical ones).

Thorax, scutellum and metanotum dull blackish. (Bristles mostly broken off). One pair of dorso-central, near hind margin, one or two supra-alar and an apical pair of scutellar bristles.

Abdomen blackish, a little blue tinged, hardly shining, an indistinct greyish band on hind margins of 2nd and 3rd segments; belly obscure, genitalia large.

Legs.—Coxae black, fore legs dark brown, tips of metatarsus and remainder of tarsus whitish yellow. Posterior femora and tibiae brownish yellow; middle tibiae sometimes darker; posterior tarsi mainly black for a greater or less distance from the tips. Posterior femora with three indistinct or incomplete blackish bands, the first basal, the second just beyond the middle, the third subapical, all these bands subject to variation in extent and intensity, sometimes reduced to a mere trace. The hind femora have in addition a narrow bright yellow ring at the extreme base.

Wings nearly clear; 1st posterior cell closed immediately before the border. An ill-defined but distinct, brownish transverse band across the middle from the costa to just below the discal cell, its proximal edge passing distad of the anterior cross-vein. The wing tip still more indistinctly but obviously clouded brownish; an irregular, indistinct brownish spot over the 1st basal cell and basal half of the discal cell. Halteres very small, obscurely brown.

Described from 3 examples; Dibrugarh, 17—19-xi-11.

N.B.—Judging from the description this form appears to be new, although in such a critical genus as *Calobata* the species require very careful comparison, and the Oriental ones are badly in want of complete revision.

PSILINAE.

Psila kempi, mihi, sp. nov.

(Pl. vi, fig. 18).

♂ ♀ N.E. Frontier of India. Long. 5½ mm.

Head.—Bright yellow, a little brownish from vertex to antennae; the vertex, which is deeply cut away behind, mainly occupied by a large velvet black spot with a semicircular outline on its lower part. A very large semicircular velvet black spot on each side of the frons, widely separated from the vertical spot, but absolutely contiguous throughout its whole width with the eye margin, and contiguous to the base of the antennae, the interval between the two spots being equal to one-fifth the width of the frons at that spot. Ocellar spot brought well forward on the frons, contiguous to the lowermost edge of the vertical black spot; it is blackish, the ocelli pale yellow. The frons proper bears two pairs of dorso-central strong curved bristles, the lower pair situated at the middle of the inner margin of each large frontal spot, the upper pair placed in a line with the lower edge of the vertical spot, but separated from both it and the eye margin. A third pair of bristles is vertical, between the upper corners of the vertical spot and the eye margin. Behind these, and distinctly behind the vertical margin, is another pair. Antennae yellow, 3rd joint elongate-oval, with rounded tip, the upper and outer edge blackish; the arista black, long plumose on upper side, bare on underside except for a few short hairs towards the tip The face bears a black median stripe Proboscis light yellow, with large labella, each bearing a black spot; palpi long cylindrical, pale yellow, with a few light hairs.

Thorax.—Light ferruginous, a brownish median stripe of moderate width from anterior margin, diminishing in intensity posteriorly Sides of thorax concolorous, a small darker longitudinal streak below shoulders. A pair of dorso-central bristles just in front of the scutellum; two supra-alar bristles; one notopleural. Scutellum and metanotum brownish yellow, dorsum of former wholly blackish; a strong basal bristle each side and a pair of strong apical bristles

Abdomen.—Dull black, basal half of 1st segment and genitalia yellow. There is a transverse yellowish band across the middle of the abdomen which fades after death.

Legs.—Femora yellow, posterior femora narrowly black at tips; tibiae black; tarsi black, fore metatarsi pale yellow; all metatarsi equal in length to rest of tarsus.

Wings.—Very pale yellowish; apical margin fr m in front of 3rd longitudinal vein to about tip of 5th vein very narrowly brown suffused; a narrow brown band of irregular width from tip of 2nd vein, traversing the posterior cross-vein, ending on 5th vein.

A brown streak, widest in the middle, on posterior side of 5th vein, not quite extending as far as opposite the anterior and posterior cross-veins. This streak varies in extent, as in one specimen it reaches the hind margin and is more diffused in nature.

Described from 3 specimens, Kobo, 400 ft., 2-xii-11, by sweeping in thick jungle.

OSCININAE.

Chlorops maculipleura, mihi, sp. nov.

N.E. Frontier of India. Long. barely $1\frac{1}{2}$ mm.

Head.—Bright yellow; upperside and tip of 3rd antennal joint black, arista black, pubescent; ocellar triangle black; a little blackish about mouth opening; centre of back of head black. Frons with about 5 or 6 stiff hairs as orbital bristles, a pair of small vertical bristles behind the ocellar triangle, and two vertical similar bristles behind the corner of each eye.

Thorax.—Dorsum yellowish brown, or it may be considered yellowish with three rather indistinct nearly contiguous brown stripes, of which the median is the widest. A very distinct oval black spot of moderate size on the sternopleura. Sides of thorax, scutellum and metanotum yellow. Thoracic bristles mostly broken off, but there is at least a pair of strong dorso-central bristles near the posterior margin and several less strong ones, laterally from the shoulder to the wing base. Scutellum with a pair of bristles towards the sides, midway between base and apex, and an apical strong pair.

Abdomen.—Brownish yellow, a brown indistinct spot towards the sides of 2nd and 3rd segments; belly yellow.

Legs yellow. *Wings* clear, venation normal; halteres yellow.

Described from one specimen from Kobo (400 ft.), 9-xi-11.

Meromyza, sp.

One example in bad condition, the antennae and most of the bristles being missing, the wings are also damaged.

It is bright yellow with three broad black shining thoracic stripes nearly contiguous; a black spot on the mesopleura, a larger one on the sternopleura and one on the metapleura; also one on each side below the abdomen. Frons shining blackish brown; legs all yellow, Yembung, 1100 ft., 13-i-12.

? **Pachylophus rufescens**, Meij. (*Myrmemorpha*).

Assam, India. Long. $1\frac{1}{2}$-2 mm.

Head.—Yellowish or brownish yellow, underside paler yellow, generally with a little whitish dust on face and cheeks. Ocellar triangle black, small; the configuration of a large triangular frontal

spot more or less visible by a darker outline ; in occasional specimens a large shining brownish triangle distinctly visible. Antennae yellow, 3rd joint elongate, with a thickened black densely pubescent arista twice as long as the joint, turned inwards slightly but obviously. Back of head yellowish, often with an irregularly shaped black spot in the middle.

Thorax varying from yellowish to rather dark brown, the usual three dorsal stripes present in some specimens but indistinctly. Usually the stripes are not visible, in some cases the spaces between them appear as two fine indistinct whitish lines. In other examples the whole thorax, including sides and scutellum, are dark brown, nearly blackish. The scutellum bears a few weak stiff hairs about its tip.

Abdomen varying from brownish yellow to dark mahogany brown ; sometimes a little pale yellowish about the base, generally with posterior margins of segments very narrowly pale. Belly usually similar to upperside.

Legs wholly bright brownish yellow ; fore pair often a little paler, front and hind tibiae often obscurely blackish, and some of the tarsi often more or less darkened. Hind femora distinctly but not greatly enlarged.

Wings clear ; 3rd longitudinal vein not parallel with 2nd or 4th ; anterior cross-vein just beyond tip of 1st vein (in some specimens barely so) ; posterior cross-vein distant from anterior cross-vein by a little more than its own length, its position not being quite stable. Halteres very pale yellowish.

Described from 3 specimens from Dibrugarh, 17—19-xi-11 ; also from a considerable series in the Indian Museum. Calcutta, 13-iii-07 [*Annandale*]; 17-v-07; 17-vii-07; 9-viii-07; Allahabad, 15-viii-09 [*Lord*]; Manbhum Dist., Bengal, 13-x-09 [*Jenkins*]; Monghyr, Bengal, 23-ix-09 [*Jenkins*]; Kulti, Bengal, 10-viii-09 [*Lord*] ; Rajmahal, Bengal, 14-ii-10 [*Chaudhuri*] ; Mangaldai, Assam-Bhutan Frontier, 30—31-xii-10 [*Kemp*]; Jahada, Nepal, 14-ii-08.

Some uncertainty attaches to this species. The generic characters agree perfectly with Becker's plate of *Pachylophus*, and figure of the antennae (Ann. Mus. Hung. viii, pl. xiii, 5-6), except that the hind femora in the present species is not spinose below. Loew says in his generic description that the frons protrudes forwards considerably in front of the eyes, and figures this character very definitely, but it is not obvious in Becker's figure, and it is certainly absent in my species.

As regards the spinose underside of the hind femora, Loew did not make it a generic character, nor is it necessarily one, and it does not appear in the description of *rufescens*, Meij. As the present species agrees with remarkable precision with Becker's description of *rufescens*, Meij., it is reasonable to assume the identity, especially as the present is a quite variable species and apparently widely distributed.

Oscinis[1] **obscuripes**, mihi, sp. nov.

Assam and N.E. Frontier of India. Long. 2—2½ mm.

Head.—Occiput dark grey, frons on upper part blackish, with a large triangular shining black spot reaching from vertex nearly to antennae; frons below this spot bright yellow. Head below antennae brownish yellow, rather variable in shade. Antennae yellowish, upperside broadly dark brown, arista dark proboscis darkened.

Thorax, scutellum and metanotum wholly blackish grey.

Abdomen.—Blackish grey, underside paler, sometimes nearly whitish.

Legs.—Yellowish, femora mainly blackish, leaving a broad yellow part at base and a narrow yellow ring at tip. Tibiae and tarsi mainly blackish, the former always pale at base for a greater or less distance; underside of tarsi paler, and hind tarsi sometimes yellowish on upper side also.

Wings clear; halteres whitish.

Described from six specimens from Dibrugarh, 17—19-xi-11, and one from Kobo, 9-xi-11.

Amongst the remainder of the *Acalyptrata* there is an Ephydrid, a Geomyzid, two Drosophilids and about half a dozen other species that owing to their indifferent condition it is impossible to classify generically; all these except one species of (?) *Drosophila* being represented by single specimens only.

PUPIPARA.

Cyclopodia horsefieldi, Meij.

Two specimens taken on a flying-fox (*Pteropus medius*, Temm.); Sadiya, 24-xi-11.

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1 There is no justification for altering this generic name to *Oscinella*, Beck. as *Oscinis* has stood unchallenged since 1804.